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FAA GENERAL AVIATION FORECAST

1999-2010

Topics for discussion

- *Developments of the past year*
- *Forecast Methodology*
- *General Aviation Forecast*

GOOD NEWS FOR GA

- *Aircraft activity up*
- *Accident rates are down*
- *Airport GA activity up*
- *Shipments and billings up*
- *Pilot certificates up*

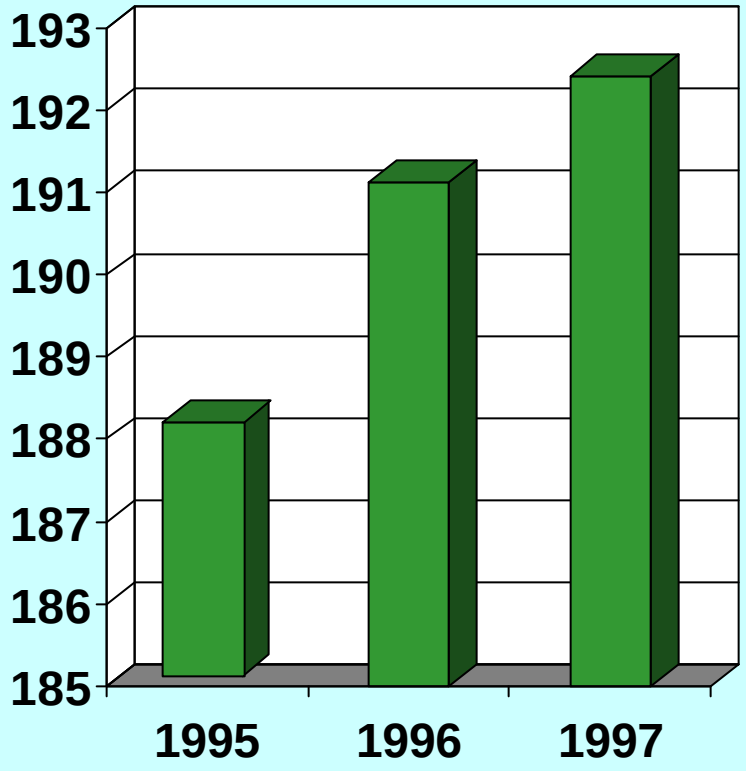
The good news for GA is that airport activity is up as are shipments and billings, pilot certificates, and aircraft fleet and hours.

And accident rates are down--NTSB estimated a rate of 7.12 accidents per 100,000 hours for 1998 down from 7.29 in 1997. The fatal accident rate declined from 1.40 to 1.35 per 100,000 hours.

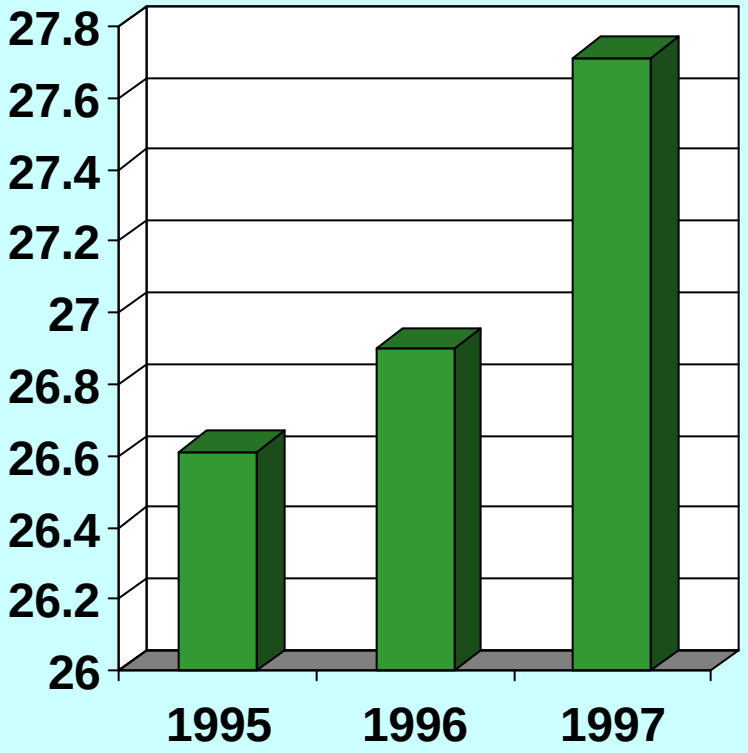
Over the year, the number of accidents did increase by 49 (to 1,907) and fatal accidents increased by 5 (to 361).

RESULTS FROM THE GA SURVEY

ACTIVE FLEET IN THOUSANDS



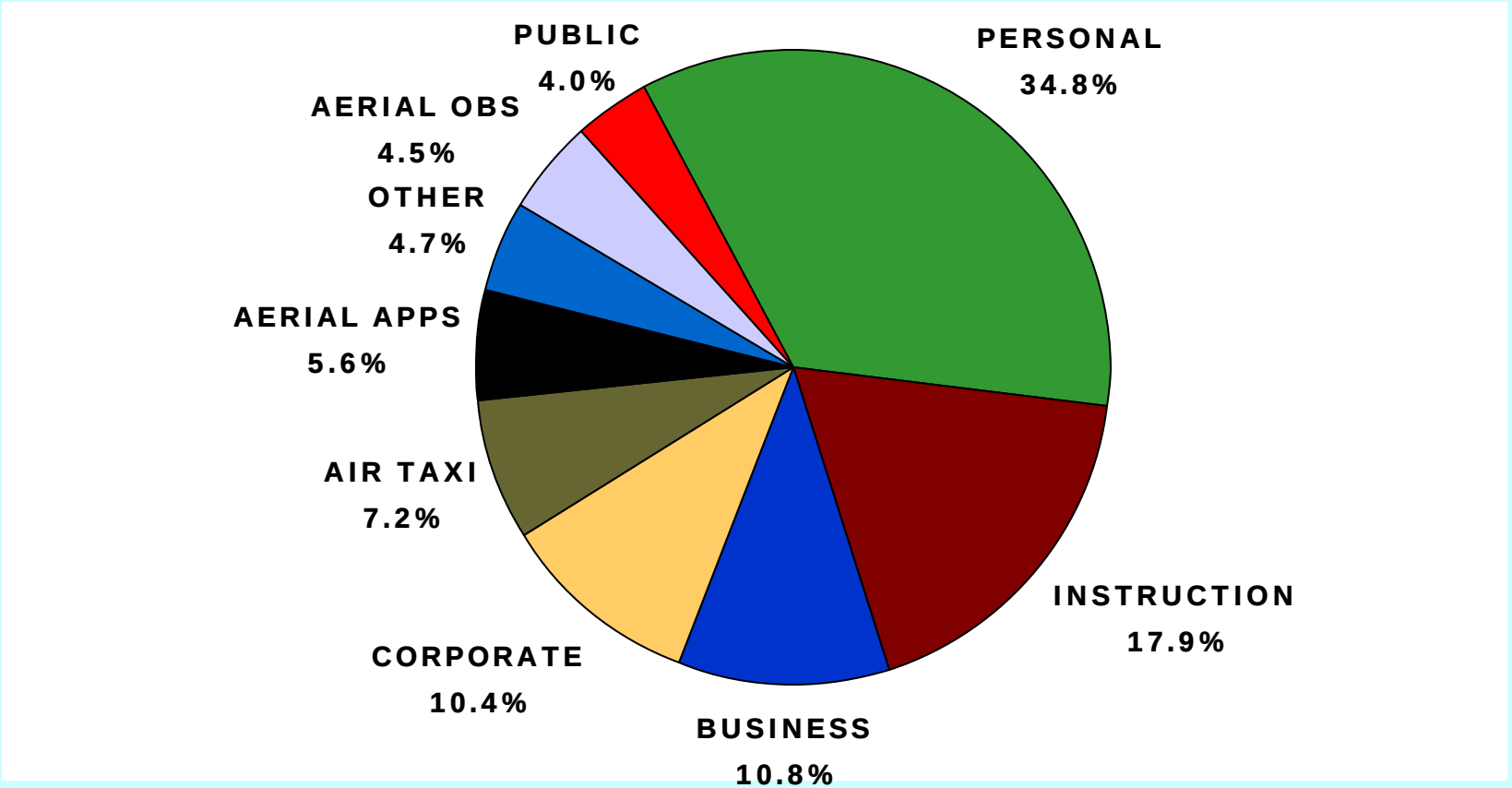
HOURS FLOWN IN MILLIONS



Results from the 1997 GA Survey

- Active fleet totaled 192,414 in 1997--a 0.7% gain over 1996
  - Piston aircraft totals increased by 1.6% to 156,055.
  - Turbine aircraft increased by 6.5% to 10,797.
  - Rotorcraft were up by 3.3 percent to 6,785.
  - Survey reported a decline in experimental of 11.7%.
  - Other aircraft were down by 3.6%.
- Hours increased by 3.0% over 1996 levels to 27.7 million.
  - Hours flown by the piston fleet increased by 3.3%
  - Turbine fleet hours increased by 1.7%, as a decline in turboprop hours was more than offset by and in in hours flown by jets.
  - Rotorcraft hours were down slightly in 1997.
  - Experimental fleet hours were up 14.6% despite the decline in fleet size--while a smaller percent reported flying those that did said they flew much more than in previous years.

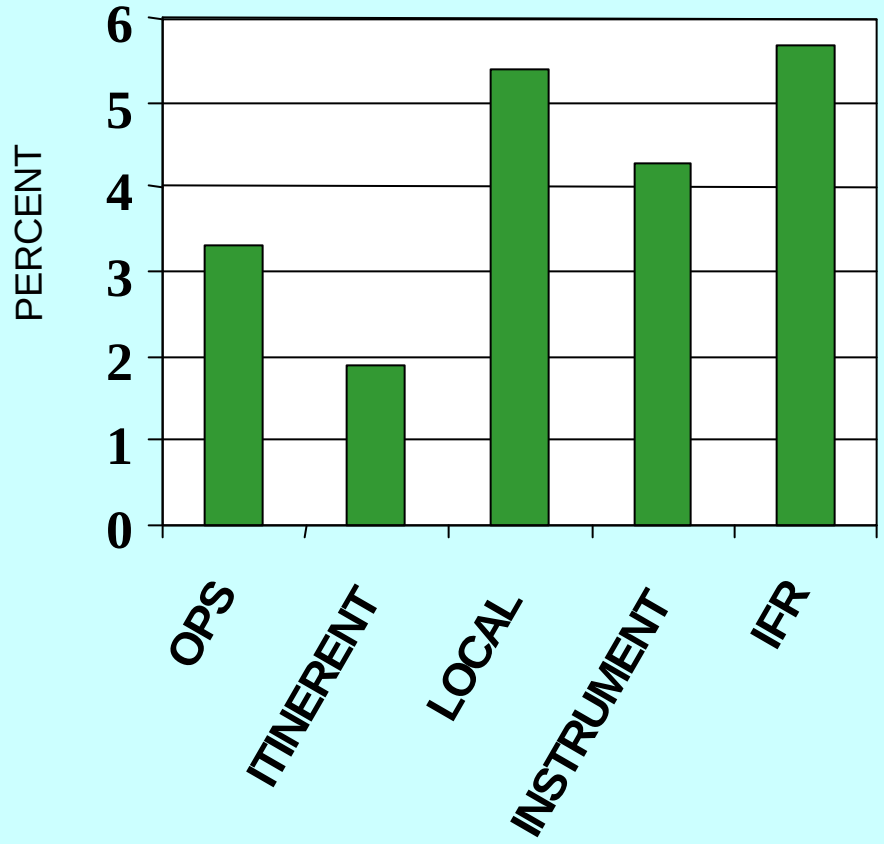
HOURS DISTRIBUTION BY USE



- Personal (34.8%) and instructional flying (17.9%) were the two largest uses of General Aviation in 1997. Both recorded increases in activity for 1997. Instructional use was up for the second consecutive year. Business (10.8%) and Corporate (10.4%) flying were the third and fourth heaviest uses. Corporate hours were little changed and business hours declined. However, the hours flown by jets in these two uses increased by 4.2 percent, consistent with the shipment of business jets we've seen recently.

- Air Taxi activity (7.2% of hours flown) was up 15.8% in 1997 and 43.1% over the past 2 years. With the high demand for fractional ownership, some corporate/business hours are being contracted to air taxis.

ACTIVITY AT AIRWAYS FACILITIES



- *OPERATIONS UP 3.3% IN 1998, 7.8% OVER LAST TWO YEARS*
- *LOCAL OPS UP 5.4%, 10.4% OVER LAST TWO YEARS*
- *INSTRUMENT OPS UP 4.3%*
- *EN ROUTE (IFR) OPS UP 7th YEAR--5.7 %*

- While total operations rose 2.5% between FY97 and FY98, General Aviation operations at towered facilities increased 3.3%--a second consecutive year after 5 years of decline. Operations were up 7.8% over the past two years.
    - A 5.4% increase in local operations followed a 4.8% gain in 1997.

- General Aviation instrument operations rose 4.3% in 1998 after a 5.5% gain in 1997. Total instrument operations were up only 2.3% for FY98

- En route—IFR operations have increased for 7 consecutive years –5.7 % in FY98

Growth in GA operations is outpacing that for air carriers, commuters, and on-demand operators. Increasing IFR activity suggests growing utilization of more sophisticated aircraft used in public, business and especially corporate applications. At the same time the high rate of increase in local operations, including touch and go operations, reflects an increase in instructional flying.

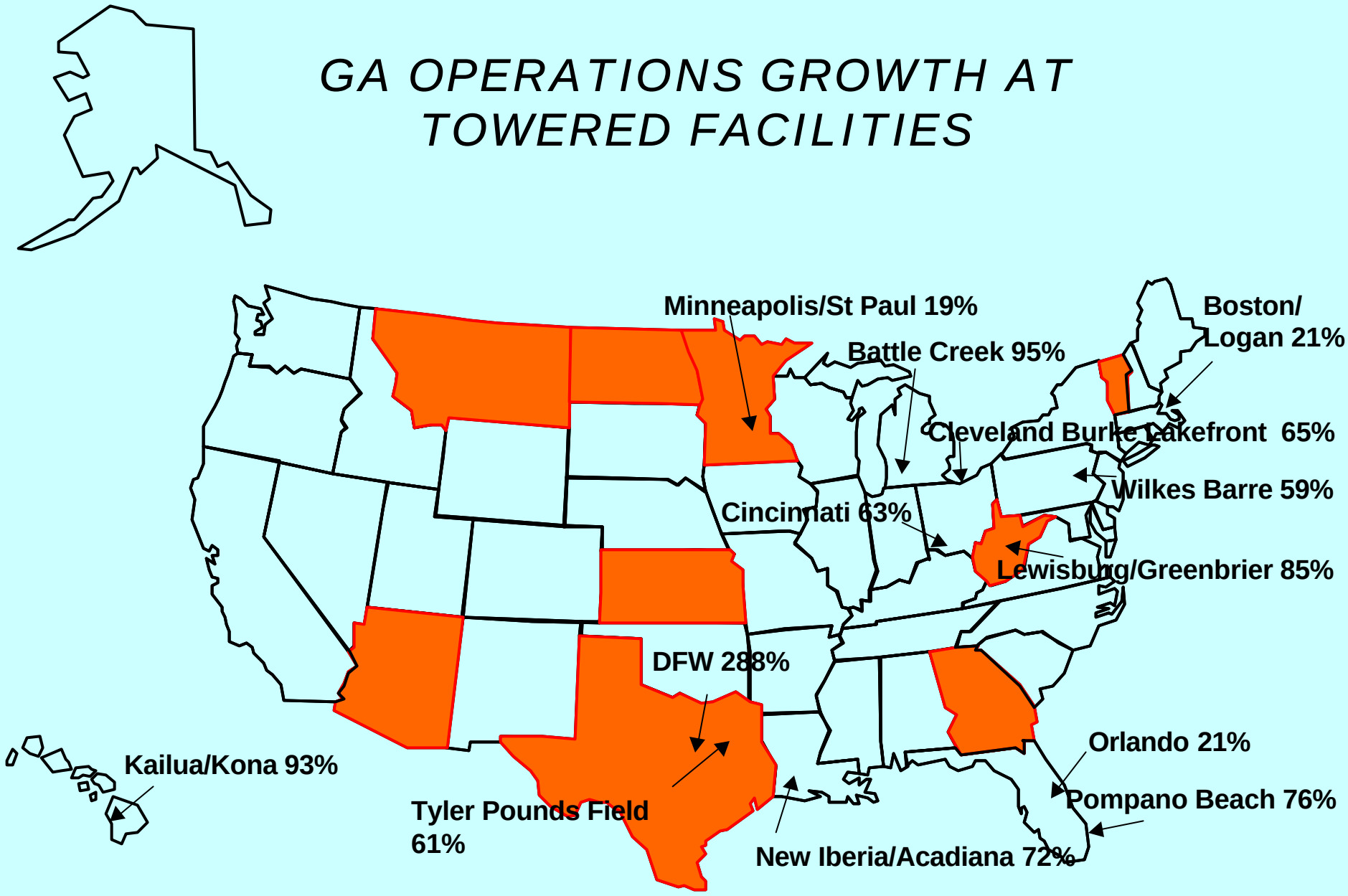
GA OPERATIONS AT TOWERED FACILITIES

Four states account for almost 40% of aircraft operations at towered facilities--California (17.1%), Florida (10.4%), Texas (7.1%), and Arizona (5.2%).

Most of the 10 airports with the most operations are in these states--Van Nuys, Long Beach, Santa Ana/Orange and Oakland in California; Sanford in Florida, Ft Worth/Meacham in Texas and Prescott in Arizona.

But 3 of the top 10 are in the North--Denver/Centennial, Pontiac, and Seattle/Boeing.

GA OPERATIONS GROWTH AT TOWERED FACILITIES



Growth in operations has not been limited to the Sunbelt.

States with the largest gains in GA operations over the year are:
Arizona (25.8%); W.Virginia (25.2%); N. Dakota (22.8%);
Georgia (21.2%); Vermont (19.3%); Minnesota (19.1%);
Montana (18.9%); Kansas (17.7%); Texas (16.5%)

Generally smaller airports are had the fastest growth in operations.
These included:
Battle Creek (94.7%); Kailua/Kona (92.9%); Lewisburg/
Greenbrier (84.7%); Pompano Beach (76.3%); New Iberia/
Acadiana (72.1%); Cleveland Burke Lakeside(64.6%);
Tyler Pounds Field (60.6%); Wilkes Barre (59.3%).
But some large airports also had high rates of growth:
Dallas/Ft Worth (288.2%); Cincinnati (63.4%); Boston/
Logan (21.2%); Orlando(20.5%) Minneapolis/St Paul (19.2%).

AIRCRAFT BILLINGS AND SHIPMENTS

- $5.9 BILLION--26% ABOVE 1997
- SHIPMENTS UP 41.5 %--
  2,220 AIRCRAFT TOTAL
- EXPORTS
  - 535 AIRCRAFT--UP 19.2 %
  - $1.6 BILLION--UP 9%
  - 24% OF SHIPMENTS
  - 28% OF BILLINGS

According to these data provided by GAMA--

1,534 piston aircraft--up 55.7%

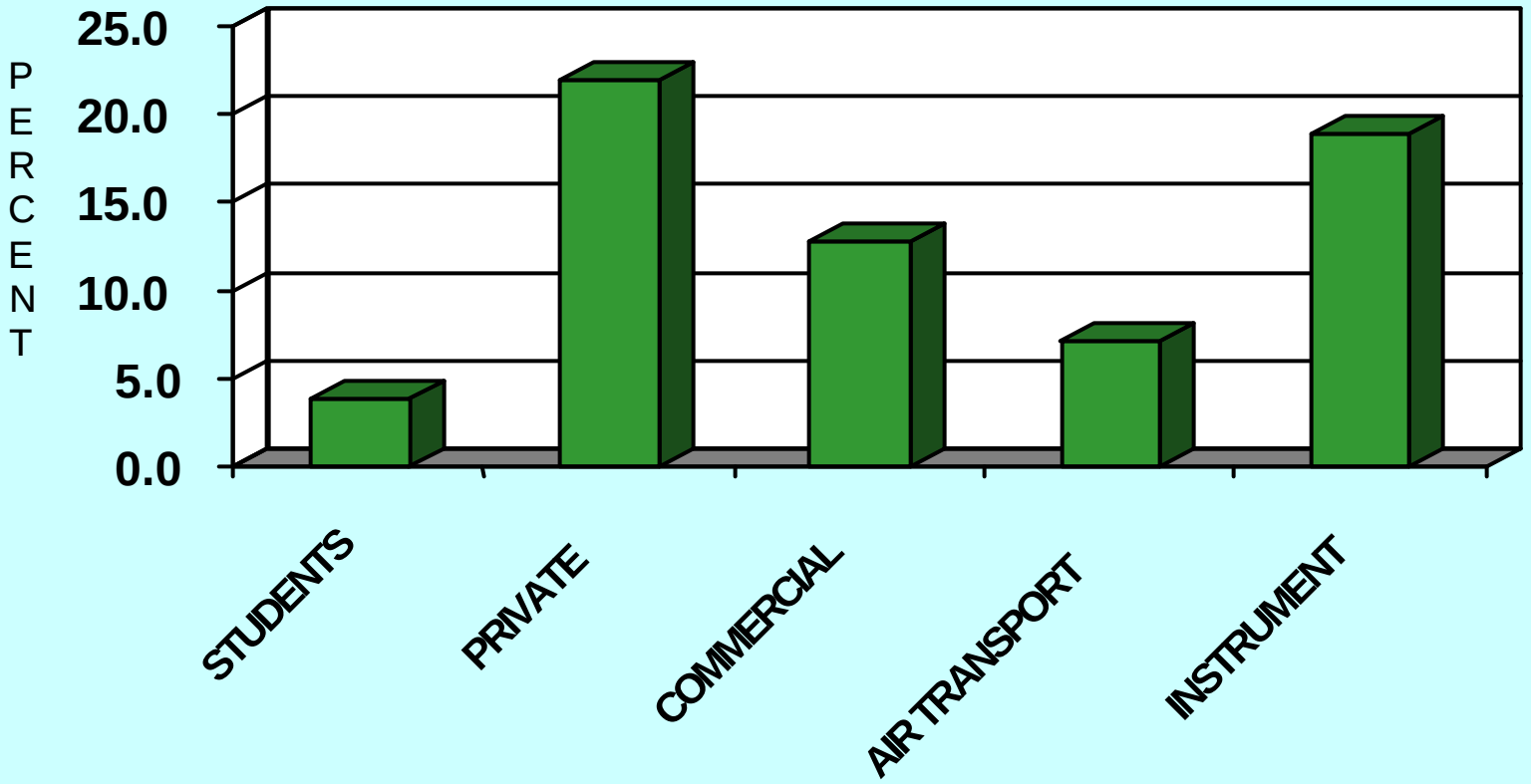
271 Turboprops --up 14.8%

415 Jets--up 19.3%

According to data provided by Aerospace Industries Association--

394 Helicopters--up 13.9%

CHANGE IN CERTIFICATES ISSUED--1997-1998



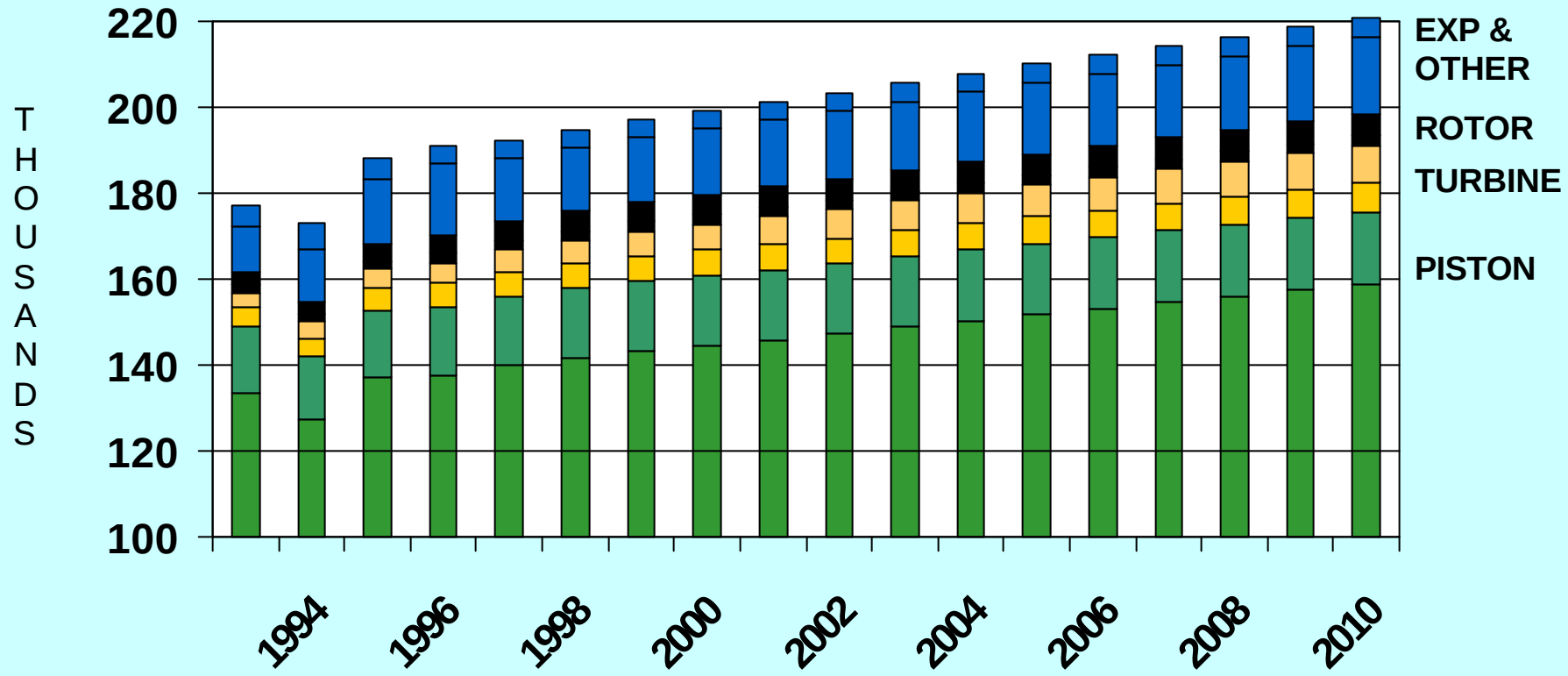
- Industry programs encourage development of new pilot.
  - GA team 2000 has about 150 companies and 1,600 flight schools--50% of those redeeming first flight coupons sign up for flight lessons.
  - AOPA project pilots has 24,000 members mentoring 30,000 students.
  - EAA offers the “Flying Start” informational seminars and “Young Eagles” program design to introduce children to aviation.
- Private pilot certificates issued climbed 22.0% to 26,297. But the net result was that total certificates held remained about the same at 247,226.
- Pace of student certificates issued slowed from the previous year to 3.8%. Total certificates held climbed 1.7% to 97,736.
- Commercial certificates issued increased by 11.7% to 10,042.
- Air Transport certificates issued increased by 7.1% to 7,547. Total certificates held increased 2.9% to 134,612.
- Instrument ratings issued increased by 18.9 percent to 21,238.

GA FORECAST METHODLOGY

- ECONOMIC ASSUMPTIONS
  - US GDP UP 2.3% AVG ANNUAL RATE
  - INFLATION UP 2.3%
  - ENERGY PRICES UP 2.8%
- DELPHI APPROACH CONSULTING INDUSTRY EXPERTS THROUGH THE TRB
- POSITIVE IMPACT OF GARA

- Assumptions and forecasts developed at the FAA/Transportation Research Board's (TRB) 10th International Workshop held in 1997 were used in preparing this year's forecast. These were updated to reflect subsequent TRB committee meetings and input from other experts in the industry. They will again be revisited this coming September at the 11th Workshop.
- The forecasts are demand driven assuming a stable economy, a GDP rising 2.3% per annum, inflation at a like rate and energy prices increasing only slightly faster.
- The forecast, therefore assumes that the necessary infrastructure will be there to support the growth, which is considerably below the reach goals of NASA's SATS (Small Aircraft Transportation System) project.
- The forecast assumes the continued positive impact of the General Aviation Revitalization Act, which was recently upheld as constitutional in a case against Cessna.
- It also assumes that the initiatives of industry and government will continue and have positive results. This initiatives will be discussed at other sessions at this conference.

GA FLEET HISTORY & 1998-2010 FORECAST



The active fleet is expected to increase at an annual rate of 1.1% over a 13 year period rising from 192,414 in 1997 to 220,804 in 2010-- about 2,200 aircraft annually.

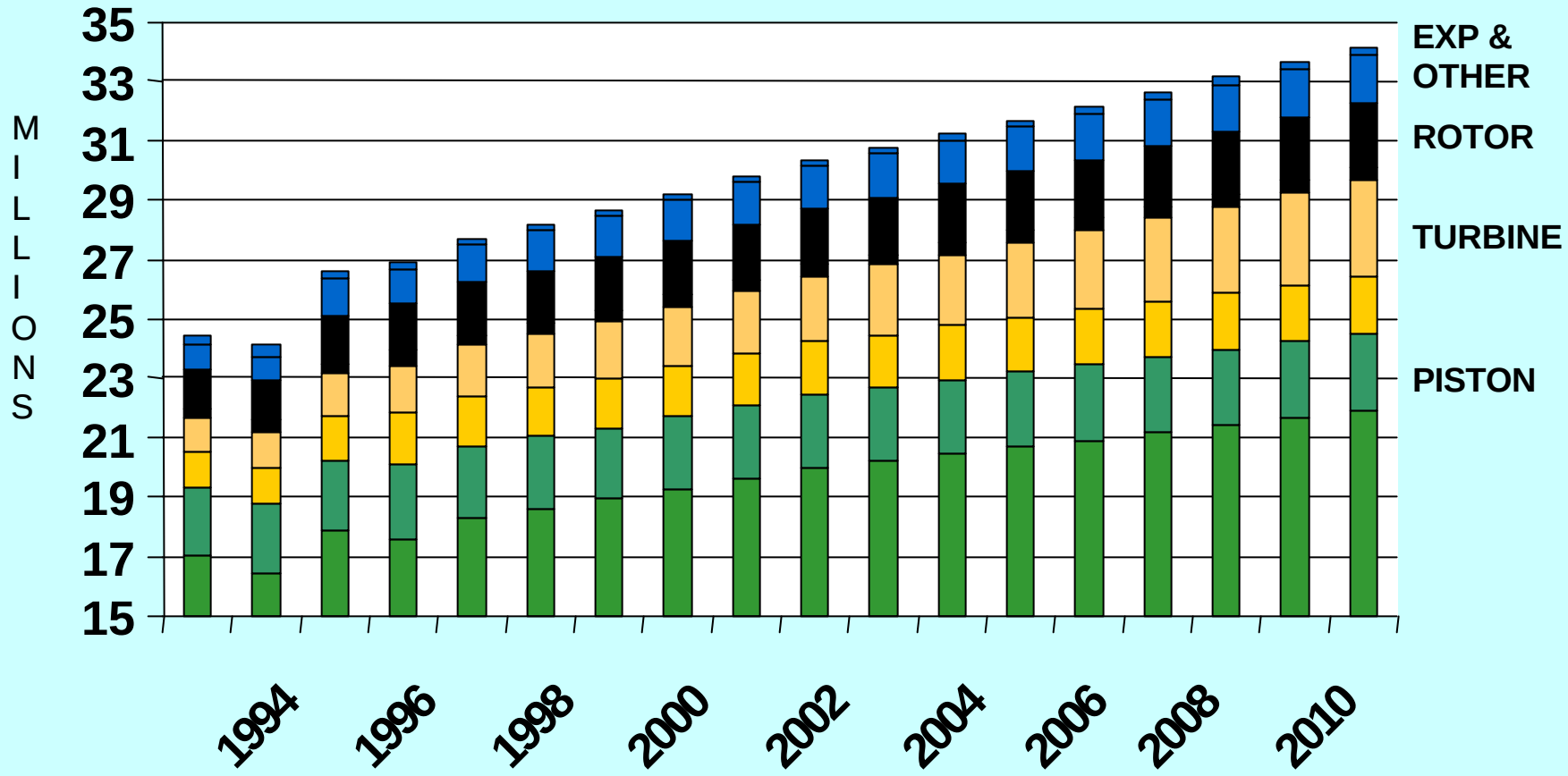
Piston aircraft are expected to increase by 0.9% over the period

The Turbine fleet is expected to rise by 2.7 percent a year. We expect these increases in the fleet will be supported by the expansion of fractional ownership and new product offerings already in development.

Helicopters are expected to increase at a 0.7% rate with piston fleet size unchanged and the turbine fleet growing by 1% a year.

Experimental fleet is expected to grow 1.5% a year and gliders and lighter-than-air craft are forecast to increase at a rate of 0.8% a year

GA HOURS HISTORY & 1998-2010 FORECAST



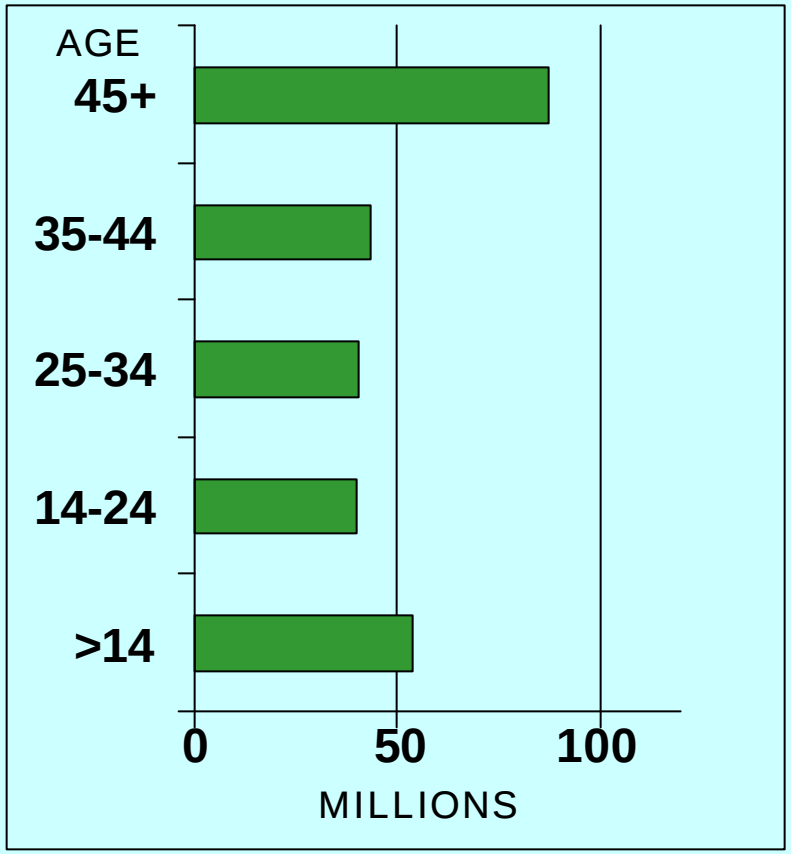
Fleet hours are forecast to increase 1.6% annually to 34.1 million in 2010. Hours outpace fleet growth in each category.

Piston hours will rise by 1.3 % a year.

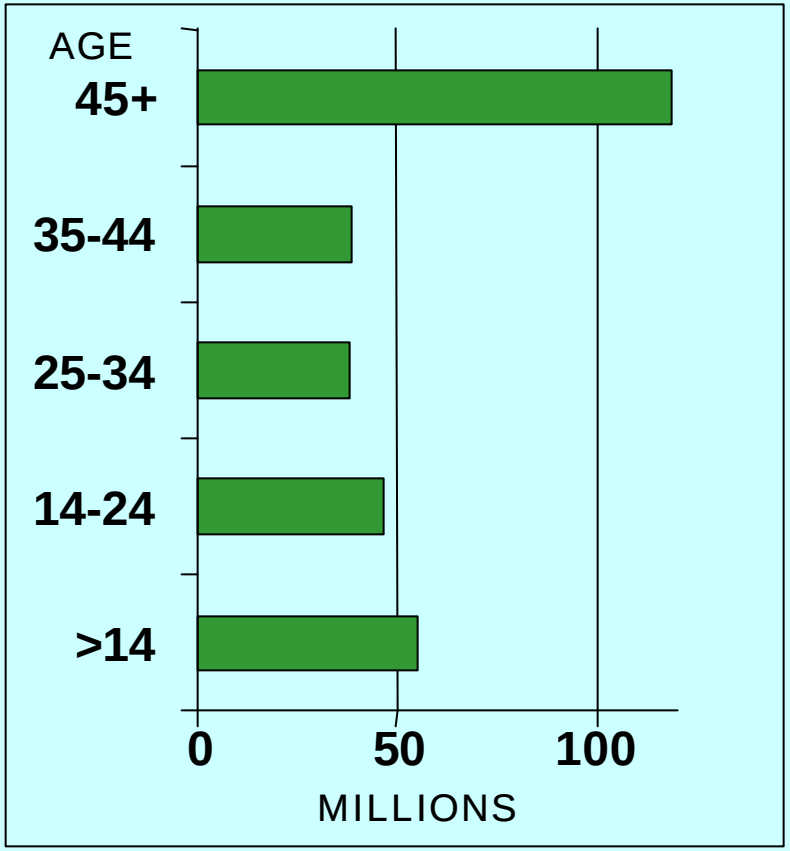
With increased utilization rates of jet aircraft, turbine fleet hours will increase at a 3.4% pace.

As the rotorcraft fleet continues to become more turbine powered, hours will increase at a 1.5% annual rate.

U.S. POPULATION BY AGE



1996



PROJECTED 2010

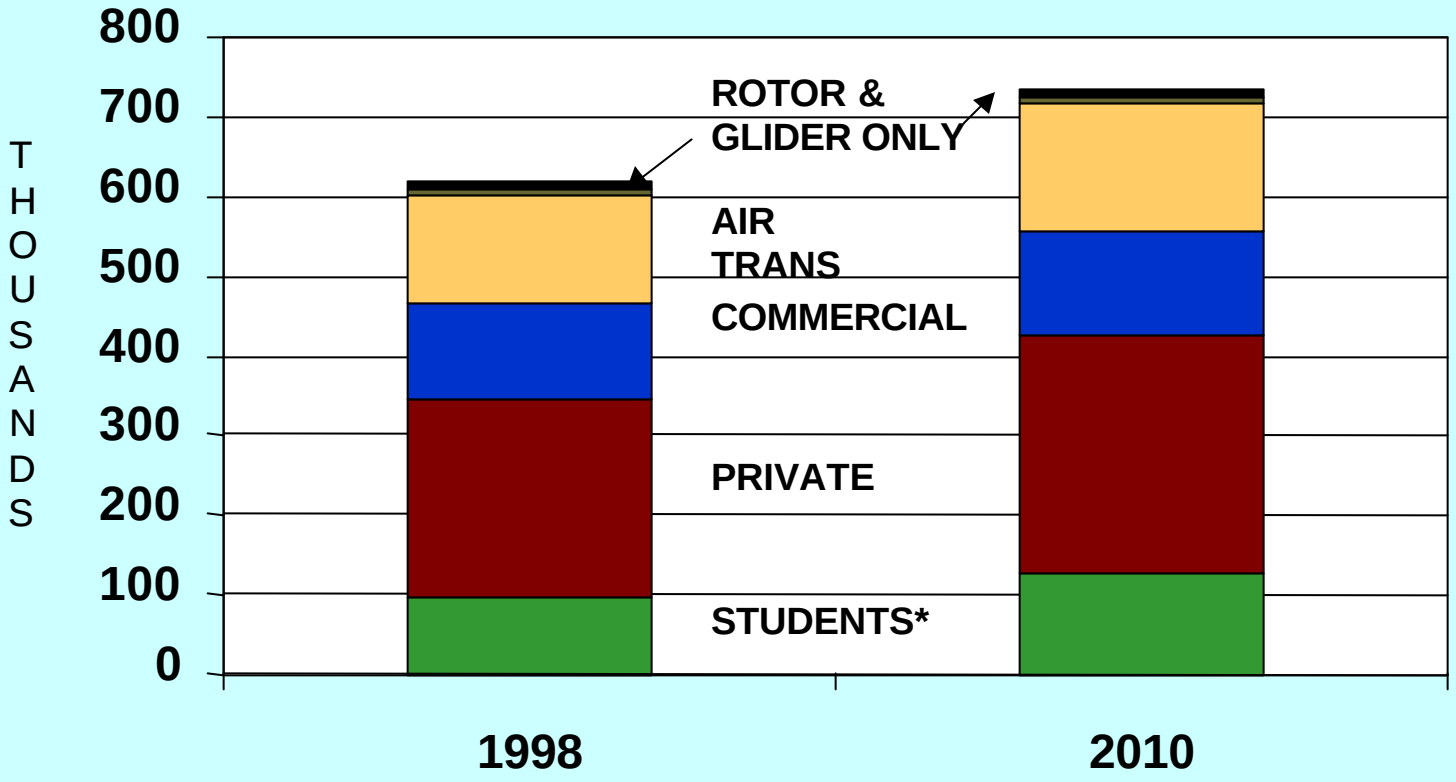
U.S. BUREAU OF THE CENSUS

Good News:
The 14-24 year age group will grow between now and 2010. This group currently contributes 25 percent of all student pilots and at 60 per 100,000, has one of the highest student pilot to population participation rates.

Bad News:
The 25-34 year and 35-44 year groups will become smaller. These two groups currently contribute 28 and 25 percent of all pilots, respectively and at 66 per 100,000 and 55 per 100,000 also have high student pilot participation rates.

The net between these three groups is little changed.

ACTIVE PILOTS
1998 and 2010 FORECAST



* INCLUDES RECREATIONAL

Based on 1996 participation rates (in order to match the 1997 population data) holding by age group in the year 2010, we should see growth in the student pilot population, but only a fraction of the rate we forecast.

A similar participation rate analysis for all pilots (Students + Non Students) indicates again, that we will see growth but we will miss the 735,000 forecast by 14,000 pilots. Clearly, we are counting on an impact from the industry student pilot programs, and we appear to be seeing a turnaround in the latest data.

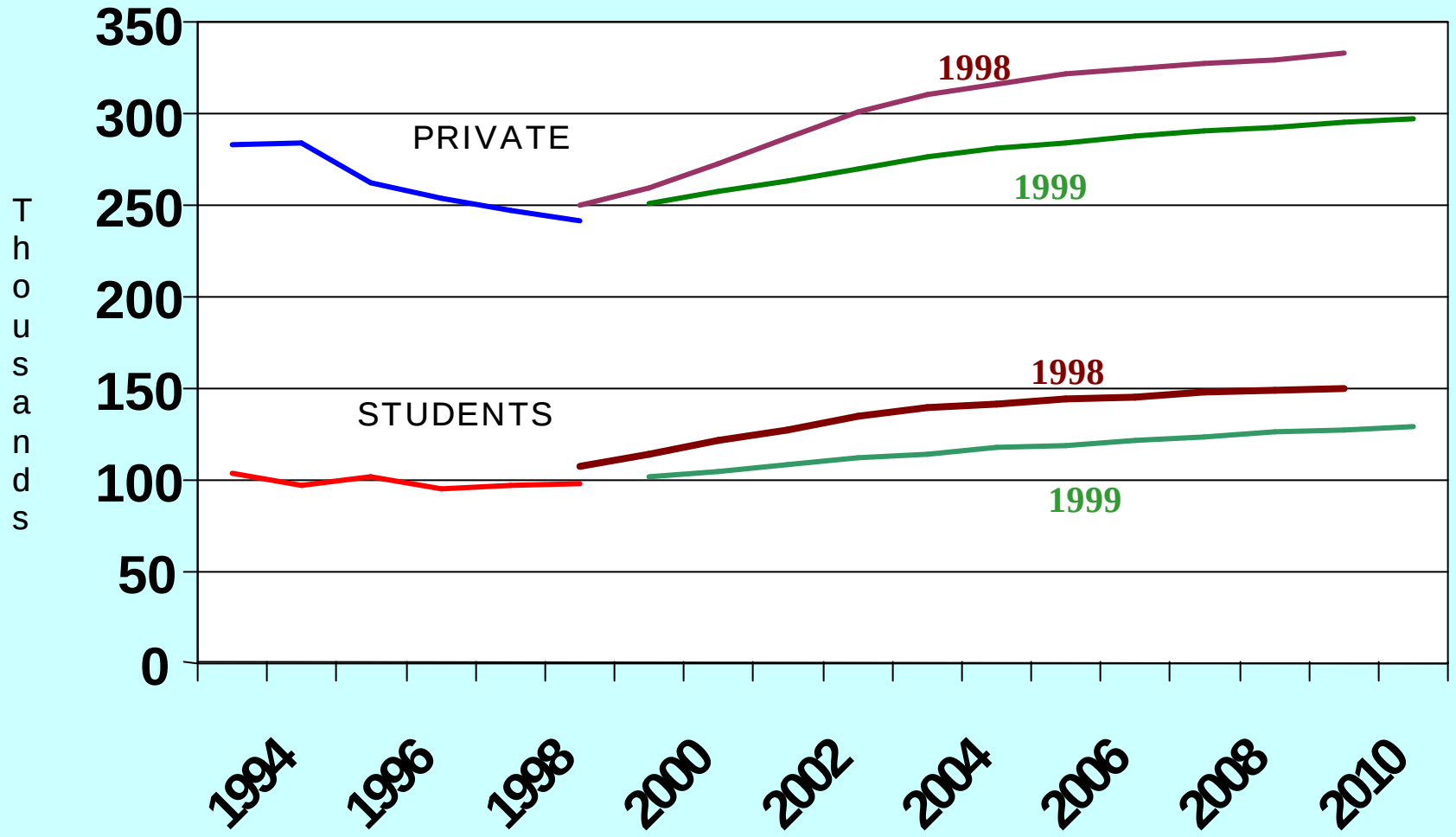
- Students (and recreational pilot) population, building on industry programs, is expected to grow at a 2.3 annual rate rising to 129,136 by 2010.

- The other categories are forecast to increase slower annual rates:
  - Private Pilots 1.6%
  - Commercial Pilots 0.5%
  - Air Transport Pilots 1.5%
  - Helicopter (only) Pilots 0.6%
  - Glider (only) Pilots 0.4%
- We forecast an active pilot population of 735,075 by 2010.

- Instrument rated pilots as a percent of all pilots is expected to remain about constant over the forecast period at around 48%.

This is despite the increased rating levels sought by pilots, because much of the growth is in the student and private pilot types.

REVISIONS IN PILOT FORECASTS



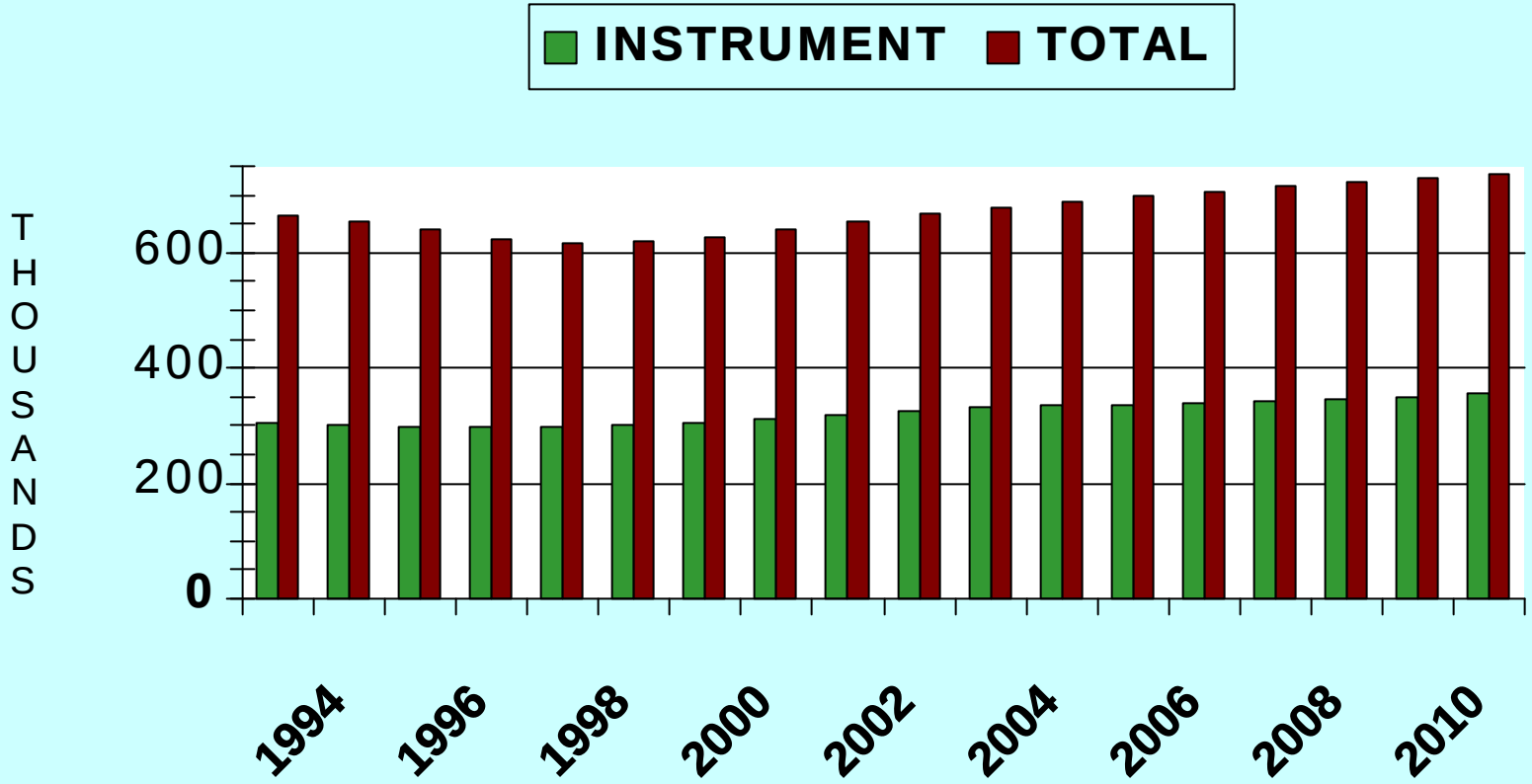
The pilot forecast has been scaled back considerably this year mostly because of changes in forecasts of students. The student growth rates expected were not realized for 1998.

The 1998 forecast was for an 11.7% increase in student pilots. This was based on the hope that industry programs would have a strong impact. There were over 63,000 certificates issued--up over 10 percent since 1996, however, with student attrition and upgrades to private, the net change in students holding certificates was only 1.7%.

Because our expectations were not realized, we scaled back the student forecast considerably. For 1999 we expect a 3.5 % increase compared to last year's forecast of 7%. Over the 1998 through 2009 period we expect a 2.4% annual increase compared to the previous forecast for 3.1%.

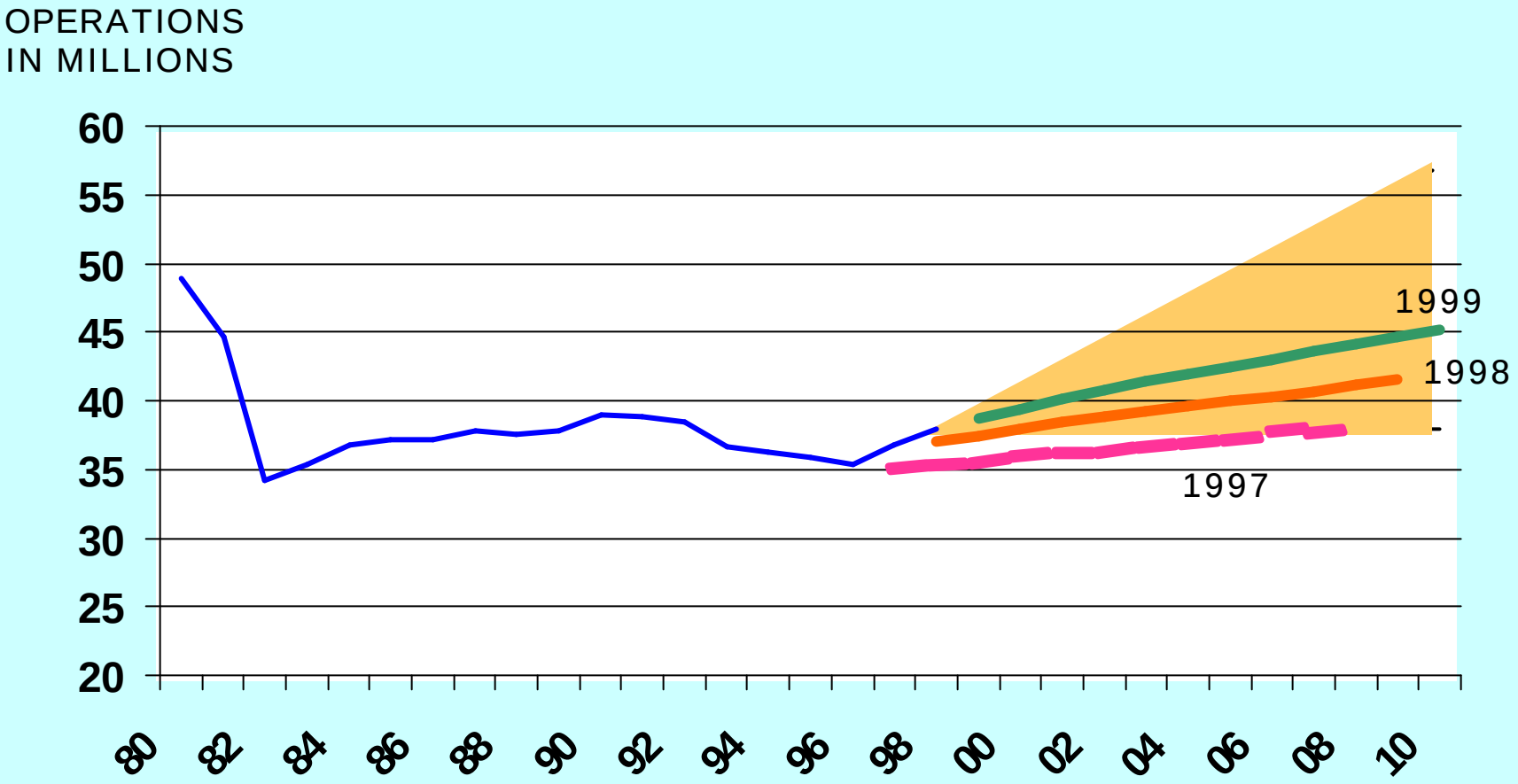
This revision affects the other categories, but primarily private pilots. Still, the forecast might appear ambitious to some, but the level are probably necessary to meet commercial air transport needs, GA aside.

INSTRUMENT RATED HISTORY & 1999-2010 FORECAST



- Instrument rated pilots as a percent of all pilots is expected to remain about constant over the forecast period at around 48%. This is despite the increased rating levels sought by pilots, because much of the growth is in the student and private pilot types.

GA OPERATIONS FORECAST-- PAST & PRESENT



Over the past 3 years the general aviation forecast has been revised upward.

This chart shows the revision in the operations forecast.

The upper bound on the triangular shaped region is defined by a trend forecast through the last three years of reported operations.

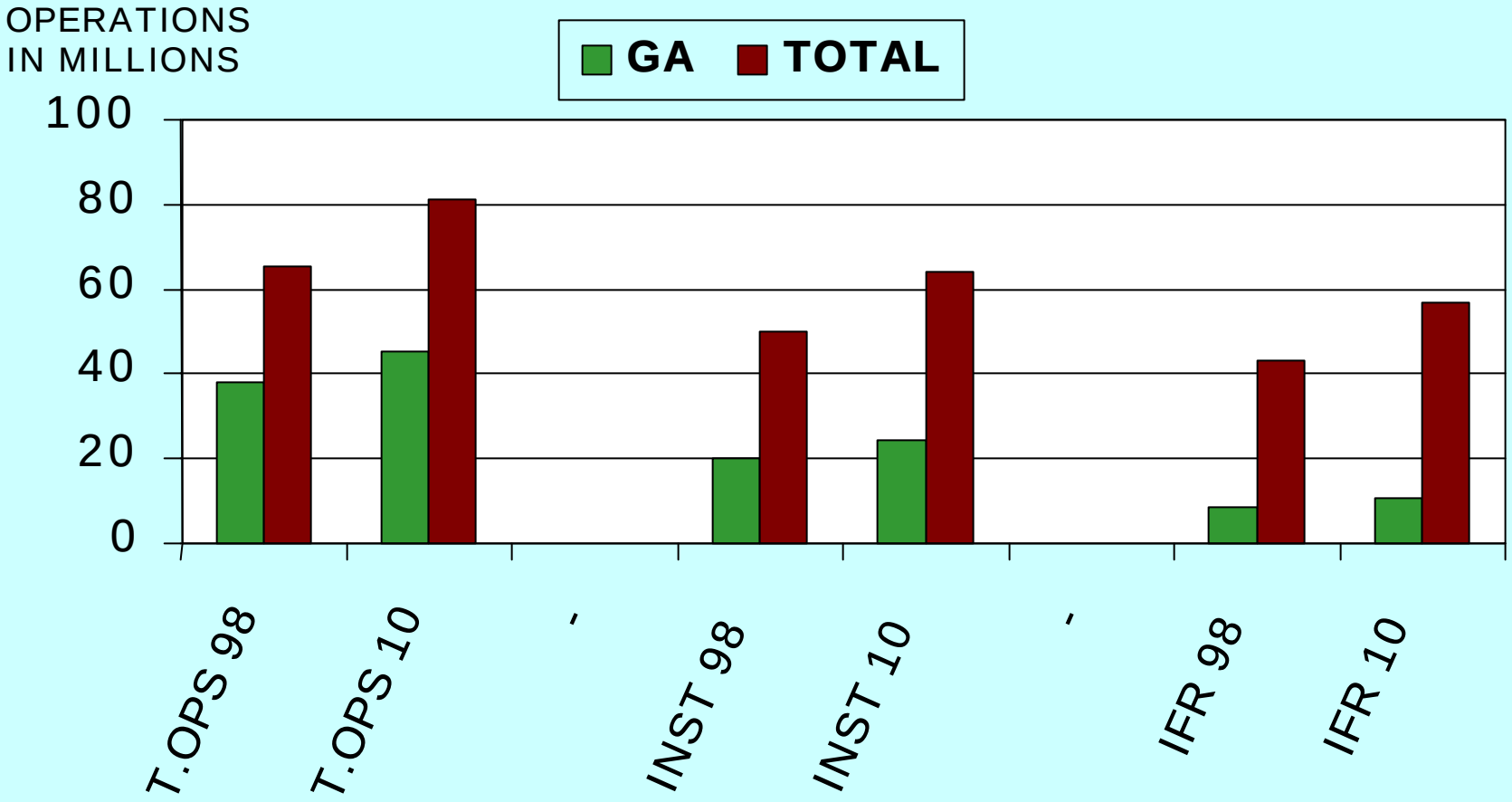
The lower bound of the triangular shaped region is a forecast through the 1980--1998 data and happens to be very close to constant (no growth).

This triangle can be seen as a range of forecasts off the most recent reported data (FY1998).

Clearly, the 1997 forecast did not fully anticipate the rapid growth that was going to take place over the past 2 years. The 1998 forecast, likewise, did not expect the high rate of growth to persist.

This is illustrated by the upward shift in the level of the forecast, were as the slight increases in slope are in a somewhat muted response to the higher levels of reported activity.

FORECASTED IMPACT ON FAA WORKLOAD



The primary purpose behind the Office of Policy and Plans preparing aviation forecasts is to forecast impact on workload.

- As has already been mentioned General Aviation accounts for 58% of aircraft operations at towered facilities, and in 1998 its growth outpaced commercial operations.

- Over the 1999 through 2010 forecast period we expect GA will grow less rapidly than other aviation activities:
  - GA operations will increase at a 1.4 rate while the total rises at a 1.8% rate. GA will still account for 56% of operations.

  - General aviation instrument operations will increase at 1.7% while the total grows at 2.1%.

  - GA operations at en route centers (IFR) will grow by 1.9% per year, while the total increases at a 2.3% rate.

FORECAST CONCERNS

- *ECONOMIC CYCLE--WHEN WILL THE NEXT DOWNTURN COME AND HOW WILL IT AFFECT GA?*
- *AGING GA FLEET --AIRCRAFT PRODUCTION AND AFFORDABILITY*
- *WILL AIRPORT AND ATC INFRASTRUCTURE SUPPORT THE GROWTH*

CONCLUDING REMARKS

- *SEND IN YOUR GA SURVEY FORM*
- *TELL YOUR FRIENDS TO SEND IN THEIR GA SURVEY FORMS*
- *SEND YOUR KIDS TO FLIGHT SCHOOL*
- *ENCOURAGE YOUR SIGNIFICANT OTHER/NEIGHBORS TO TAKE UP FLYING*